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DIVISION OF PUBLIC HEALTH

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Recommended Diagnostic Testing and Treating of Pertussis Wisconsin Division of Public Health

Diagnostic Tests

PCR: Polymerase Chain Reaction (PCR) is supplanting culture as the test of choice for diagnosis of pertussis for the following reasons:

- Culture requires special media and incubation of up to 7 days
- Culture sensitivity decreases in older or previously immunized patients
- Culture sensitivity decreases in patients treated with antibiotics
- PCR can detect the presence of *B. pertussis* in a processed specimen in less than one hour

Culture: CDC and the Wisconsin State Laboratory of Hygiene (WSLH) also recommend culture whenever PCR is performed, as the culture is important to isolate the organism for antimicrobial resistance monitoring and for epidemiologic purposes. However, when culture cannot be performed at the same time it is advised to have the PCR performed without culture (rather than not testing the patient).

To ensure that cases of pertussis are investigated in a timely manner it is important that specimens be submitted to the testing laboratory immediately. Please do not hold specimens for group submission.

Specimen Collection

The WSLH offers both PCR and Culture testing. Request kit #30 and the accompanying date form entitled "CDD Requisition Form (A)" from the WSLH by calling (800) 862-1088 or (608) 265-2966. If you have questions, please contact the WSLH Customer Service at (800) 862-1013.

Tests offered include:

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|----------------------------|------------------|
| • Bordetella pertussis PCR | Test code 623PCR |
| • Bordetella Culture | Test code 623C |

Kit # 30 kits contains among, other things, one sterile calcium alginate tipped swab (for culture) and one Dacron® polyester tipped swab (for PCR) along with corresponding sterile screw-capped tubes and transport medium. The swab applicators use a flexible wire, which is the only device that should be used to insert in the nasopharynx for the collection of the specimen. When collecting the specimen, gently insert the swabs into separate nares and proceed gently to the posterior wall of the pharynx (see diagram). Do not direct the swabs upward, let them creep along the floor of the nasal cavity. Do not force the swab past obstruction. Hold the swabs in place for up to 10 seconds or

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until a paroxysmal cough is elicited (or ask the patient to cough). This should ensure an adequate specimen and reduce the possibility of false negative results. Some practitioners have found it easier to insert both swabs into the same nares, which is acceptable. Also, slightly bending the wire swab into an arc shape may allow for easier insertion into the pharynx.

Both the calcium alginate and Dacron® polyester tipped swabs, which look identical, work best if they are placed in the appropriate transport medium. However, if they are inadvertently put in the wrong medium, the PCR and culture can still be successfully tested per the WSLH.

Treatment and Chemoprophylaxis

Antimicrobial agents given during the catarrhal stage may ameliorate the disease. After the cough is established, antimicrobial agents may have no discernible effect on the course of illness but are recommended to limit the spread of organisms to 5 days in contrast to approximately 3 weeks in untreated persons. The health care provider may choose one of the four antibiotics recommended for the treatment of pertussis patients and prophylaxis of contacts listed below.

1. Azithromycin

10-12 mg/kg/day orally in one dose for 5 days; maximum of 500 mg/day for 5 days

Note: The dosage of Azithromycin, based on the weight of the patient, should be the same for all 5 days. Be sure to prescribe the full dosage. It is not necessary to retreat patients who already received less than the optimal doses.

2. Clarithromycin

15-20 mg/kg/day orally in two divided doses for 7 days; maximum of 1g/day for 7 days

3. Erythromycin estolate

In children: 40-50 mg/kg per day orally in 4 divided doses for 14 days

In adults: 1 to 2 g/day orally in 4 divided doses for 14 days

4. Trimethoprim-Sulfamethoxazole (TMP-SMZ) Alternative treatment for patients who cannot tolerate erythromycin.

In children: trimethoprim 8 mg/kg/day, sulfamethoxazole 40 mg/kg/day in two divided doses for 14 days

In adults: trimethoprim 320 mg/day, sulfamethoxazole 1600 mg/day in two divided doses for 14 days

If you have any question contact the Immunization Program at 608-266-3031 or 608-266-1339

A sterile swab is passed gently through the nostril and into the nasopharynx

